

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT  
APPEALS AND INTERFERENCES

Applicants: M. Kriss, et al. ) I hereby certify that this  
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 ) Trevor B. Joice  
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 ) Attorney for Applicant

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APPELLANTS' BRIEF

Commissioner for Patents  
Washington, DC 20231

Sir:

1. Real Part in Interest

The real party in interest is A.C. Nielsen Company, a Delaware corporation.

2. Related Appeals and Interferences

There are no other appeals and interferences known to Appellants, Appellants' legal representatives or assignees which will directly affect or be affected by or have a bearing on the Board's decision in the pending appeal.

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3. Status of Claims

Claims 1-49 are pending in the application. Claims 7, 8, 12, and 17-21 have been indicated as allowable, subject to certain objections. The final rejection of claims 1-6, 9-11, 14-16, and 22-49 is appealed.

It is noted that the Examiner included dependent claim 13 in the rejection. However, it is further noted that the Examiner indicated allowability of dependent claim 12 from which dependent claim 13 depends and that the Examiner did not specifically comment on dependent claim 13 as the Examiner did with respect to each of the other rejected claims. Accordingly, appellants assume herein that dependent claim 13 has also been allowed, subject to the same objections that apply to dependent claim 12.

4. Status of Amendments

All amendments have been entered.

5. Summary of the Invention

A product supplier of interest (labeled as Retailer<sub>1</sub> only for purposes of this Summary) typically knows the purchases that its customers make from it. Retailer<sub>1</sub> also generally knows the sales of other retailers (labeled as Retailers<sub>2-n</sub> only for purposes of this Summary) because market share information is widely available. However, Retailer<sub>1</sub> does not know who makes purchases from Retailers<sub>2-n</sub> and whether any of these purchasers are the customers of Retailer<sub>1</sub>. The present invention allows Retailer<sub>1</sub> to know more about the purchases that its customers make from Retailers<sub>2-n</sub>.

According to the present invention, estimating the purchases that the customers of Retailer<sub>1</sub> make from Retailers<sub>2-n</sub> is preferably based upon two sources of data. A first source of data provides panelist data. This panelist data is collected from a panel, which is a subset of the customers of Retailer<sub>1</sub>. The panelist data collected from these panelists includes not only data on the purchases that the panelists make from Retailer<sub>1</sub>, but also data on the purchases that the panelists make from Retailers<sub>2-n</sub>. Also collected is a panelist ID uniquely identifying the corresponding panelist.

A second source of data is Retailer<sub>1</sub>, who acquires data regarding its sales to its customers. This data is referred to herein as customer data. Retailer<sub>1</sub> collects customer data from each of its customers in the usual way (such as from its point-of-sale terminals), and also collects the customers' identifications. The customer data and the identification data are stored together so that the customer data are associated with the corresponding customers.

Based upon the panelist data and the customer data, purchases from Retailers<sub>2-n</sub> made by the customers of Retailer<sub>1</sub> can be estimated in accordance with the present invention.

This estimate may be made in accordance with the flow chart shown in Figures 2A and 2B. The panelist data are read at a block 20. A block 22 aggregates the panelist data by panelist ID. For each panelist ID, the data is further aggregated by product category. Product categories are selected based on the products offered by Retailer<sub>1</sub>. For example, if the product supplier of interest is a grocery store chain, one product category

might be carbonated beverages and another might be breakfast cereals.

Within each product category, the panelist data is further divided between purchases that the corresponding panelist made from Retailer<sub>1</sub> and purchases that the corresponding panelist made from Retailers<sub>2-n</sub>. The panelist data are also stored in the product categories by trip. Accordingly, if a panelist purchased a product in a product category from Retailer<sub>x</sub> during one trip to Retailer<sub>x</sub> and a product in the same product category from Retailer<sub>x</sub> during another trip to Retailer<sub>x</sub>, the panelist's data would contain an entry in the same product category for each trip. Therefore, each panelist ID table includes the number of dollars that the corresponding panelist spent in each product category by trip to Retailer<sub>1</sub>, and the number of dollars that the corresponding panelist spent in each product category by trip to Retailers<sub>2-n</sub>.

Moreover, the panelist data may be aggregated at the block 22 so that the number of dollars spent with Retailer<sub>1</sub> is totaled by panelist ID across all product categories and is included in the table for the corresponding panelist, and so that the number of trips made by each panelist to Retailer<sub>1</sub> is totaled across all product categories and is included in the table for the corresponding panelist. Similarly, the data may be aggregated at the block 22 so that the number of dollars spent with Retailers<sub>2-n</sub> by each panelist is totaled across all product categories and is included in the table for the corresponding panelist, and so that the number of trips made by each panelist to Retailers<sub>2-n</sub> is totaled across all product categories and is included in the table for the corresponding panelist.

Furthermore, each panelist ID table further includes a  $\text{Retailer}_1$  share for each product category. In determining this share, the dollars paid by the panelist to  $\text{Retailer}_1$  in the corresponding product category during all trips covered by the applicable time period are divided by the total dollars paid by the panelist to  $\text{Retailer}_1$  in all product categories during the same time period. Each panelist ID table includes the dollars paid by the panelist to  $\text{Retailers}_{2-n}$  for each product category during all trips covered by the applicable time period.

Finally, the panelist data in each panelist ID table are also similarly aggregated for each department. That is, the panelist data are aggregated in the same way as discussed above but this time by department, where each department covers one or more related product categories.

At a block 24, the customer data (from  $\text{Retailer}_1$ , i.e., the second source) are read, and at a block 26, the customer data are aggregated by customer ID in the same manner as described above in connection with the block 22.

At a block 28, an unrotated principal components factor analysis is performed on the data aggregated at the block 26 (i.e., the aggregated customer data). This analysis produces a factor matrix which is a  $k \times i$  matrix having  $k$  rows and  $i$  columns, where  $k$  is the number of customer IDs, and where  $i$  is the number of factors resulting from the unrotated principal components factor analysis. The unrotated principal components factor analysis collapses the  $j$  dimensions in product category space (where  $j$  is the number of product categories) down to  $i$  dimensions. The value of  $i$  may be

selected so that each of the  $i$  dimensions has a minimum eigenvalue (such as 1.3).

At a block 30, the factor matrix generated at the block 28 is used to score the panelist data. This scoring is accomplished by matrix multiplying the factor matrix produced at the block 28 and the  $k \times j$  panelist data to produce  $k \times i$  factors. Accordingly, this matrix multiplication generates a panelist set of factors  $F_1$  through  $F_i$  for each panelist ID, where  $i \leq j$ . Thus, a principal component category may be identical to a product category if the sales in the product category are sufficiently high. The factors  $F_1$  through  $F_i$  for the panelists are part of the panelist predictor variables discussed below.

At a block 32, the factor matrix generated at the block 28 is similarly used to score the customer data. Again, this scoring is accomplished by matrix multiplying the factor matrix produced at the block 28 and the  $k \times j$  customer data to produce  $k \times i$  factors. This matrix multiplication, therefore, generates a customer set of factors  $F_1$  through  $F_i$  for each customer ID. The factors  $F_1$  through  $F_i$  for the customers are part of the customer predictor variables discussed below.

For each panelist, other panelist predictor variables are created at a block 34. These other panelist variables are determined from the panelist data and include one or more of the following:  $F_1^2$  through  $F_i^2$  which are the squares of the corresponding factors  $F_1$  through  $F_i$  created at the block 30; interdependent factors which include the products of all possible pairs of the factors  $F_1$  through  $F_i$  created at the block 30 (that is,  $F_1 \times F_2$ ,  $F_1 \times F_3$ , . . .  $F_1 \times F_i$ ,  $F_2 \times F_3$ ,  $F_2 \times F_4$ , . . .  $F_2 \times F_i$ ,  $F_3 \times F_4$ , . . .  $F_{i-1} \times F_i$ );  $T_1$ ,  $T_2$ , . . . ,  $T_j$  which

are the total number of panelist trips in the corresponding  $j$  product categories;  $T_1^2, T_2^2, \dots, T_j^2$  which are the squares of  $T_1, T_2, \dots, T_j$ ;  $TD$  which is the sum of the dollars spent by the corresponding panelist in all product categories;  $TD^2$  which is the square of  $TD$ ;  $CD_1, CD_2, \dots, CD_j$  which are the dollars spent by the corresponding panelist with  $Retailer_1$  in the corresponding  $j$  product categories; and,  $CO_1, CO_2, \dots, CO_j$  which are the dollars spent with  $Retailers_{2-n}$  in the corresponding  $j$  product categories.

Other customer predictor variables are created at a block 36 for each customer ID and for each product category in the same way. However,  $CO_1, CO_2, \dots, CO_j$ , which are the dollars spent by the corresponding customer with  $Retailers_{2-n}$  in the corresponding product categories, is to be estimated.

A set of criterion variables  $CV_i$  is created at a block 38 for each product category by dividing the panelist IDs into buckets according to their values of  $CO_j$ . That is, for a first product category, a bucket zero contains all panelist IDs whose corresponding value of  $CO_1 = 0$ , provided that there are at least a predetermined number (such as 150) of such panelist IDs. The remaining panelist IDs are sorted from highest to lowest according to their values of  $CO_1$  and are then divided evenly into buckets one through  $n$  for the first product category, with the bucket one containing the remaining panelist IDs whose values of  $CO_1$  are lowest (other than zero), with the bucket two containing the remaining panelist IDs whose values of  $CO_1$  are next lowest, and so on. Each of the buckets one through  $n$  must contain at least the predetermined number of panelist IDs, and each of the buckets one through  $n$  must come as close as possible to

containing the predetermined number of panelist IDs with the proviso that all of the buckets one through n should contain, as closely as possible, an equal number of panelist IDs.

If the bucket zero is only a few panelist IDs short of the predetermined number, a sufficient number of remaining panelist IDs whose values of  $CO_1$  are lowest may be moved into the bucket zero so that the bucket zero contains the predetermined number of panelist IDs. This movement is made before the sorting and dividing described above. On the other hand, if the bucket zero contains only a few panelist IDs, no panelist IDs are put into the bucket zero and instead all panelist IDs are sorted and divided as described above.

The criterion variable  $CV_0$  for the first product category is set equal to the number of panelist IDs in the bucket zero, the criterion variable  $CV_1$  for the first product category is set equal to the number of panelist IDs in the bucket one, the criterion variable  $CV_2$  for the first product category is set equal to the number of panelist IDs in the bucket two, and so on. This process is then repeated for each of the other product categories so that there is a set of criterion variables for each of the product categories.

At a block 40, the panelist data are split between model data and leave out data. All panelist data associated with a randomly selected  $r\%$  of the panelist IDs are designated as leave out data. The remaining panelist data are designated as model data.

At a block 42, scoring rules are determined from the model data using a commercially available Wizwhy program. The inputs to the Wizwhy program during this iteration are the predictor variables which meet all of



the following three criteria: (i) the predictor variables must correspond to the model data; (ii) the predictor variables must correspond to the panelist IDs in the bucket zero; and, (iii) the predictor variables must correspond to the first product category. Next, the Wizwhy program determines similar scoring rules using the same criteria except that this time the predictor variables are based on the panelist IDs in the bucket one. An iteration of the Wizwhy program is similarly executed for each of the other buckets. This process is then repeated for each of the other product categories.

At a block 44, new panelist predictor variables are created by applying the scoring rules generated at the block 42 to the model data and the leave out data by bucket and by product category. A block 46 creates new customer predictor variables by applying the scoring rules to the customer data by product category (there are no buckets of customer data). At a block 48, the subroutine Proc Reg of the commercially available program SAS is performed. The Proc Reg subroutine is a linear regression that is performed based only on the model data and that generates an output coefficient matrix. Each row of this matrix contains a set of coefficients for a corresponding product category. The Proc Reg subroutine is performed J times, where J is 50 for example, according to the following equation:

$$\text{model depvar} = \text{indepvar} / \text{maxr} \quad \text{stop} = i \quad (1)$$

where the dependent variable depvar are the criterion variables by product category as determined at the block 38, and where the independent variables indepvar are the predictor variables created at the blocks 44 by product

category. The output coefficient matrix of the Proc Reg subroutine as executed by the block 48 is a linear equation for each product category, where each linear equation has a set of coefficients as contained in a corresponding row of the output coefficient matrix. These linear equations establish a linear relationship by product category between purchases made by panelists from Retailer<sub>1</sub> and purchases made by the panelists from Retailers<sub>2-n</sub>.

The block 50 uses the new customer predictor variables determined at the block 46 as the variables in the linear equations determined at the block 48 in order to estimate the sales by Retailers<sub>2-n</sub> to the customers of Retailer<sub>1</sub> in each of the product categories.

6. Issue Appealed

Whether claims 1-6, 9-11, 14-16, and 22-49 are unpatentable under 35 U.S.C. §103(a) over the Geurts article in view of the Pindyck text.

7. Grouping of Claim

The appealed claims are treated separately in this appeal.

8. Argument

The Geurts Article

The Geurts article relates to the determination of market share (i.e., the amount of products sold by a supplier as a percent of the amount of the product sold by all suppliers). The Geurts article discloses that there are four forecasting models that are used to determine market share: time series models; multiple

linear regression models; logit models; and, conjoint analysis models.

Time series models use past market share data to project future market share. Multiple linear regression models are developed based on past market share and take into account the extent to which market share responds to changes in product features, promotional campaigns, distribution channels, and pricing. Logit models are similar to regression models, differing primarily in the way the variables are used in the models. Conjoint analysis models use survey information in order to forecast market share for new products that have no past market share history.

As can be seen, market share tells a product supplier its share of the total market and the shares of the total market of the other product suppliers. However, market share information tells a product supplier nothing about the products that its customers are buying from the other product suppliers.

#### The Pindyck Text

The Pindyck text cited by the Examiner discloses various aspects of multiple regression models.

#### Issue

Independent claim 1 is directed to a method of estimating purchases made by customers of a supplier of interest (e.g., Retailer<sub>1</sub> as used in the Summary above) from other suppliers (e.g., Retailers<sub>2-n</sub> as used in the Summary above). According to the method, panelist data regarding purchases made by panelists from the supplier of interest and from the other suppliers are read. The panelists are a subset of the customers. A relationship

between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the other suppliers is determined. Customer data regarding purchases made by the customers from the supplier of interest are also read. Based upon the customer data and the relationship, the purchases made by the customers from the other suppliers are estimated.

In the rejection of independent claim 1, the Examiner asserts that the Pindyck text discloses the use of linear regressions in economic forecasting, but does not disclose that linear regressions can be used to estimate competitor product sales. Therefore, the Examiner relies on the Geurts article, which discloses the use of a linear regression in determining market share. The Examiner then asserts that it would have been obvious to use the linear regression techniques taught in the Pindyck text to determine market share information relating to a suppliers competitors in view of the Geurts article.

Even if this were so, the Examiner still has not addressed the invention of independent claim 1. Independent claim 1 is not directed to a determination of market share. In fact, market share does not produce the information that is determined by the invention of independent claim 1.

Independent claim 1 instead relates to a method that determines the purchases that the customers of a supplier of interest make from other suppliers. While market share would tell the supplier of interest how much product the other suppliers are selling, market share would not tell the supplier of interest whether any of

the products sold by the other suppliers were purchased by the customers of the supplier of interest.

Therefore, the combination of the Geurts article and the Pindyck text as put forward by the Examiner does not address the invention of independent claim 1 and does not render the invention of independent claim 1 obvious.

More specifically, the Geurts article discloses market share forecasting from which a supplier of interest (e.g., Retailer<sub>1</sub>) can determine its share of the total market, and can presumably determine the shares of the other suppliers (e.g., Retailers<sub>2-n</sub>). The supplier of interest also knows the purchases that its customers make from it. However, the supplier of interest does not know the purchases that its customers make from the other suppliers. Market share information cannot be used to give the supplier of interest this information. Thus, because the Geurts article is limited to ways of developing market share information, the Geurts article does not disclose or suggest how a supplier of interest can determine the purchases that its customers make from the other suppliers.

Similarly, the Pindyck text does not disclose or suggest how a supplier of interest can determine this information.

Accordingly, even if the Geurts article and the Pindyck text can be combined, the resulting combination would not disclose or suggest any method for permitting a supplier of interest to determine the purchases that its customers make from other suppliers.

For the reasons given above, independent claim 1 is not obvious over the Geurts article in view of the Pindyck text.

In rebuttal of appellants' remarks as contained in their amendment, the Examiner argues that there is a need for a supplier of interest to know the sales of its competitors. Such an argument, however, is not relevant to the invention of independent claim 1 because independent claim 1 is directed to a method that permits the supplier of interest to estimate the purchases that its customers make from other suppliers. Knowing the products that a competitor sells does not tell a supplier of interest whether its customers are buying any of those products. Therefore, knowing the products sold by other suppliers does not help the supplier of interest to determine whether its customers are buying any of those products.

The Examiner also argues that the invention of independent claim 1 is a specific example of the more general problem of cross-sectional economic forecasting that is taught in the Pindyck text. Even if the Examiner's argument were true, a genus does not automatically render a species obvious. Moreover, neither the Pindyck text nor the Geurts article suggests that it is desirable for a supplier to know what its customers are purchasing from other suppliers. Indeed, there is not the slightest hint in either of these references of determining the purchases made from other suppliers by the customers of the supplier of interest.

In fact the only suggestion anywhere of this invention is in appellants' own application. Because the Examiner has found no suggestion of the present invention in the prior art, it is quite apparent that the Examiner is using hindsight by relying on the present application for the suggestion of the invention of independent claim 1. This use of hindsight is not permitted.

The Examiner goes on to state that there is nothing inherently novel about the invention of independent claim 1, citing the Pindyck reference. If this statement were true, the Examiner would be able to find the invention of independent claim 1 plainly disclosed in the Pindyck text or in another reference. However, the Examiner has not pointed out where the Pindyck text discloses the invention of independent claim 1, and has cited no other reference that discloses the invention of independent claim 1. Accordingly, the invention of independent claim 1 is novel.

By this argument, the Examiner may mean simply that, because it is known to use regression techniques in economic forecasting, it is obvious to use a linear regression in determining purchases made by customers of a supplier of interest from other suppliers based on purchases that these customers make from the supplier of interest and on the purchases that panelists make from both the supplier of interest and the other suppliers. However, this argument on its face is illogical because, while the specific may suggest the general, the general does not suggest the specific. There is simply no suggestion in any of the references cited by the Examiner of the invention of independent claim 1.

For the reasons given above, independent claim 1 is patentable over the Geurts article in view of the Pindyck text.

Independent claim 30 is directed to a method of estimating purchases made by customers of a supplier of interest from other suppliers. This method involves reading customer data regarding purchases made by the customers from the supplier of interest, reading panelist data regarding purchases made by panelists from the

supplier of interest and from the other suppliers, and estimating purchases made by the customers from the other suppliers based upon the customer data and the panelist data.

In the rejection of independent claim 30, the Examiner simply refers to the rejection of independent claim 1. In the rejection of independent claim 1, and as noted above, the Examiner asserts that the Pindyck text discloses the use of linear regressions in economic forecasting, and that the Geurts article disclose a particular form of economic forecasting (market share) and even discloses the use of a linear regression in determining market share. The Examiner concludes then that it would have been obvious to use the linear regression techniques taught in the Pindyck text to determine market shares of a supplier's competitors in view of the Geurts article.

However, independent claim 30, like independent claim 1, is not directed to a determination of market share. In fact, market share does not produce the information that is determined by the invention of independent claim 30.

Rather, independent claim 30 relates to the determination of the purchases that the customers of a supplier of interest make from other suppliers. While market share would tell the supplier of interest how much product the other suppliers are selling, market share would not tell the supplier of interest whether any of the products sold by the other suppliers were purchased by the customers of the supplier of interest.

Therefore, the combination of the Geurts article and the Pindyck text as put forward by the Examiner does not address the invention of independent



claim 30 and does not render the invention of independent claim 30 obvious.

Accordingly, independent claim 30 is not obvious over the Geurts article in view of the Pindyck text.

The Examiner's rebuttal to appellants' previous remarks falls short with respect to independent claim 30 as they did with respect to independent claim 1.

Independent claim 39 is directed to a method of estimating purchases made by customers of a supplier of interest. According to this method, a linear relationship between purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers is determined, and purchases from the other suppliers made by the customers of the supplier of interest are estimated based upon the linear relationship.

In the rejection of independent claim 39, the Examiner simply refers to the rejection of independent claim 1. In the rejection of independent claim 1, and as noted above, the Examiner asserts that the Pindyck text discloses the use of linear regressions in economic forecasting, and that the Geurts article disclose a particular form of economic forecasting (market share). The Examiner concludes that it would have been obvious to use the linear regression techniques taught in the Pindyck text to determine market shares of a supplier's competitors in view of the Geurts article.

However, independent claim 39, like independent claims 1 and 30, is not directed to a determination of market share. In fact, market share does not produce the information that is determined by the invention of independent claim 39.

Rather, independent claim 39 relates to the determination of the purchases that the customers of a supplier of interest make from other suppliers. While market share would tell the supplier of interest how much product the other suppliers are selling, market share would not tell the supplier of interest whether any of the products sold by the other suppliers were purchased by the customers of the supplier of interest.

Therefore, the combination of the Geurts article and the Pindyck text as put forward by the Examiner does not address the invention of independent claim 39 and does not render the invention of independent claim 39 obvious.

Accordingly, independent claim 39 is not obvious over the Geurts article in view of the Pindyck text.

Independent claim 39 also requires the determination of a linear relationship between purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers. Neither the Geurts article nor the Pindyck text discloses or suggests this particular linear relationship.

The Geurts article discloses the use of linear regressions to determine market share. However, the Geurts article does not disclose or suggest determining a linear relationship between purchases made by panelists from a supplier of interest and purchases made by the panelists from other suppliers. Moreover, the Geurts article does not disclose or suggest the use of a linear regression in estimating purchases by a supplier's customers from other suppliers.

The Pindyck text discloses the use of linear modeling in order to do economic forecasting. However,

the Pindyck text does not disclose or suggest using linear modeling to determine a linear relationship between purchases made by panelists from a supplier of interest and purchases made by the panelists from other suppliers. Moreover, the Pindyck text does not disclose or suggest the use of a linear modeling in estimating purchases by a supplier's customers from other suppliers.

For these reasons, independent claim 39 is not obvious over the Geurts article in view of the Pindyck text.

The Examiner's rebuttal to appellants' previous remarks falls short with respect to independent claim 39 as they did with respect to independent claims 1 and 30.

Independent claim 43 is directed to a system for estimating purchases made by customers of a supplier of interest. The system includes an analyzing means and an estimating means. The analyzing means analyzes purchases made by the customers from the supplier of interest and purchases made by panelists from both the supplier of interest and other suppliers. The estimating means estimates purchases by the customers from the other suppliers based upon the analyzed purchases.

In the rejection of independent claim 43, the Examiner simply refers to the rejection of independent claim 1. In the rejection of independent claim 1, and as noted above, the Examiner asserts that the Pindyck text discloses the use of linear regressions in economic forecasting, and that the Geurts article disclose a particular form of economic forecasting (market share). The Examiner concludes that it would have been obvious to use the linear regression techniques taught in the Pindyck text to determine market shares of a supplier's competitors in view of the Geurts article.

However, independent claim 43, like independent claims 1, 30, and 39, is not directed to a determination of market share. In fact, market share does not produce the information that is determined by the invention of independent claim 43.

Therefore, the combination of the Geurts article and the Pindyck text as put forward by the Examiner does not address the invention of independent claim 43 and does not render the invention of independent claim 43 obvious.

Accordingly, independent claim 43 is not obvious over the Geurts article in view of the Pindyck text.

The Examiner's rebuttal to appellants' previous remarks falls short with respect to independent claim 43 as they did with respect to independent claims 1, 30, and 39.

Dependent claim 2 recites that step a) of independent claim 1 comprises aggregating the panelist data and the customer data according to categories. In the rejection of dependent claim 2, the Examiner "takes official notice" that aggregating data according to categories is a common statistical technique that would have been an obvious to apply in estimating competitor sales. Again, the inventions of the rejected claims are not directed to the estimation of competitor sales (as in market share) but rather are directed to an estimation of competitor sales to particular people, i.e., the sales by competitors to the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 2 is erroneous and the Examiner's rejection of dependent claim 2 must therefore fail.

Moreover, even assuming that it is common practice to aggregate sales by category, the Examiner has not shown that it is common practice to aggregate the particular sales as recited in dependent claim 2. Therefore, another premise of the Examiner's rejection of dependent claim 2 is erroneous and the Examiner's rejection of dependent claim 2 must therefore fail.

For the reasons given above, dependent claim 2 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 3 recites that the aggregated data of dependent claim 2 includes a number of dollars that each panelist spent by category with the supplier of interest and a number of dollars that each panelist spent by category with the other suppliers. In the rejection of dependent claim 3, the Examiner "takes official notice" that aggregating dollars spent is inherent in the notion of market share. Yet again, the inventions of the rejected claims are not directed to the estimation of market share but rather are directed to an estimation of competitor sales to particular people, i.e., the sales by competitors to the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 3 is erroneous and the Examiner's rejection of dependent claim 3 must therefore fail.

Additionally, even assuming that it is common practice to aggregate dollars, the Examiner has not shown that it is common practice to aggregate dollars as recited in dependent claim 3. Therefore, another premise of the Examiner's rejection of dependent claim 3 is erroneous and the Examiner's rejection of dependent claim 3 must therefore fail.

For the reasons given above, dependent claim 3 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 4 recites that the aggregated data of dependent claim 2 includes share for the supplier of interest and share for the other suppliers by category. In the rejection of dependent claim 4, the Examiner "takes official notice" that share is inherent in the notion of market share. Still again, the inventions of the rejected claims are not directed to market share but rather to an estimation of competitor sales to particular people, i.e., the sales by competitors to the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 4 is erroneous and the Examiner's rejection of dependent claim 4 must therefore fail.

Moreover, even assuming that it is common practice to include share information in aggregated data, the Examiner has not shown that it is common practice to include share information in aggregated data as recited in dependent claim 4. Therefore, another premise of the Examiner's rejection of dependent claim 4 is erroneous and the Examiner's rejection of dependent claim 4 must therefore fail.

For the reasons given above, dependent claim 4 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 5 is directed to performing an unrotated principal components factor analysis on at least one of the aggregated panelist data and the aggregated customer data. In this rejection, the Examiner merely says that the unrotated principal components factor analysis is well known as admitted by

appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 5. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found obvious the inclusion of an unrotated principal components factor analysis in the type of method recited in the claims upon which dependent claim 5 depends. Because the Examiner has offered no such suggestion, the Examiner has not carried the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 5 is old cannot sustain an obviousness rejection of dependent claim 5, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 5, dependent claim 5 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 6 recites that predictor variables are determined based upon at least one of the aggregated panelist data and the aggregated customer data. The Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to apply in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of

dependent claim 6 is erroneous and the Examiner's rejection of dependent claim 6 must therefore fail.

Moreover, while the Pindyck text discusses the use of dependent variables, independent variables, explanatory variables, and random variables in regression techniques, the Examiner has not asserted or shown that the Pindyck text discloses the use of predictor variables, much less the predictor variables disclosed in the present application. Therefore, another premise of the Examiner's rejection of dependent claim 6 is erroneous and the Examiner's rejection of dependent claim 6 must therefore fail.

For the reasons given above, dependent claim 6 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 9 recites that the predictor variables include factors  $F_1$  through  $F_i$  resulting from the performing step. As disclosed in the present application, factors  $F_1$  through  $F_i$  are produced by matrix multiplying a factor matrix and certain data, such as the panelist data and/or the customer data. The factor matrix is produced by the unrotated principal components factor analysis and is a  $k \times i$  matrix where  $k$  is the number of customer or panelist IDs and  $i$  is the number of factors resulting from the unrotated principal components factor analysis.

The Examiner has not pointed to any prior art that shows predictor variables including these factors. The Examiner merely argues that labeling predictor variables as  $F_1$  through  $F_i$  does not make an invention patentable. However, the Examiner has neglected to interpret dependent claim 9. When the Examiner does so interpret dependent claim 9, the Examiner will find that



the factors  $F_1$  through  $F_i$  are those that result from an operation on customer data and/or panelist data. The Examiner has not shown an operation on customer data and/or panelist data and, therefore, cannot have shown the factors  $F_1$  through  $F_i$ .

Without such as showing, dependent claim 9 would not have been obvious over the Geurts article in view of the Pindyck text.

For the reasons given above, dependent claim 9 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 10 recites that the predictor variables also include the squares of the factors  $F_1$  through  $F_i$ . The Examiner argues that squaring predictor variables is shown at page 102 of the Pindyck text. While this reference shows that variables can be squared, this reference does not disclose the squaring of predictor variables or the squaring of the factors  $F_1$  through  $F_i$  as defined in the application.

Therefore, a premise of the Examiner's rejection of dependent claim 10 is erroneous and the Examiner's rejection of dependent claim 10 must therefore fail.

For the reasons given above, dependent claim 10 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 11 recites that the predictor variables also include interdependent factors based upon products of the factors  $F_1$  through  $F_i$ . The Examiner argues that including interdependent factors based upon products of the factors  $F_1$  through  $F_i$  is shown at page 103 of the Pindyck text. While this reference shows that variables can be multiplied, this reference does not

disclose the multiplying of predictor variables or multiplying of the factors  $F_1$  through  $F_i$  as defined in the application.

Therefore, a premise of the Examiner's rejection of dependent claim 11 is erroneous and the Examiner's rejection of dependent claim 11 must therefore fail.

For the reasons given above, dependent claim 11 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 14 recites that the predictor variables include a total number of dollars spent in a category. The Examiner asserts that the number of dollars spent in a category is inherent in the notion of market share. As discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 14 is erroneous and the Examiner's rejection of dependent claim 14 must therefore fail.

Moreover, while the Pindyck text discusses the use of dependent variables, independent variables, explanatory variables, and random variables in regression techniques, the Examiner has not asserted or shown that the Pindyck text discloses the use of total number of dollars spent in a category as a predictor variable. Therefore, another premise of the Examiner's rejection of dependent claim 14 is erroneous and the Examiner's rejection of dependent claim 14 must therefore fail.

For the reasons given above, dependent claim 14 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 15 recites that the predictor variables also include a square of the total number of dollars. The Examiner argues that squaring predictor variables is shown in the Pindyck text per the Examiner's discussion with respect to dependent claim 10. While the Pindyck text shows that variables can be squared, this reference does not disclose the squaring of predictor variables or the squaring of the total number of dollars.

Therefore, a premise of the Examiner's rejection of dependent claim 15 is erroneous and the Examiner's rejection of dependent claim 15 must therefore fail.

For the reasons given above, dependent claim 15 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 16 recites the step of determining criterion variables based upon at least one of the aggregated panelist data and the aggregated customer data. The Examiner asserts that the use of predictor variables and criterion variables in regression analyses is common, pointing to the Uekawa patent. This patent does not, however, disclose or suggest criterion variables based upon aggregated panelist data or aggregated customer data. Likewise, none of the other references cited by the Examiner disclose or suggest criterion variables based upon aggregated panelist data or aggregated customer data. Moreover, the Examiner does not offer any suggestion as to why criterion variables based upon aggregated panelist data or aggregated customer data should be included in the linear regressions disclosed in either the Geurts article or the Pindyck text.

For these reasons, dependent claim 16 is patentable over the Geurts article in view of the Pindyck text.

The Examiner does say that the present invention is merely a particular application of common techniques. Even if this were so, one does not automatically conclude that an invention is obvious because it employs common techniques. The Examiner has not gone on to show how the use of this "common technique" would have been obvious in the present context.

Therefore, for this reason also, dependent claim 16 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 22 recites the step of performing an unrotated principal components factor analysis on at least one of the panelist data and the customer data. The Examiner, in referring to the rejection of dependent claim 5, merely asserts that the unrotated principal components factor analysis is well known as admitted by appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 22. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found the inclusion of an unrotated principal components factor analysis in the type of method recited in independent claim 1 obvious. Because the Examiner has offered no such suggestion, the Examiner has not carried

the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 22 is old cannot sustain an obviousness rejection of dependent claim 22, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 22, dependent claim 22 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 23 recites the step of determining predictor variables based upon at least one of the panelist data and the customer data. The Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to use in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to competitor sales in the context of market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 23 is erroneous and the Examiner's rejection of dependent claim 23 must therefore fail.

Moreover, while the Pindyck text discusses the use of dependent variables, independent variables, explanatory variables, and random variables in regression techniques, the Examiner has not asserted or shown that the Pindyck text discloses the use of predictor variables, much less the predictor variables disclosed in the present application. Therefore, another premise of the Examiner's rejection of dependent claim 23 is erroneous and the Examiner's rejection of dependent claim 23 must therefore fail.

For the reasons given above, dependent claim 23 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 24 recites the step of determining criterion variables based upon at least one of the panelist data and the customer data. The Examiner asserts that the use of criterion variables in regression analyses is common, pointing to the Uekawa patent. This patent does not, however, disclose or suggest criterion variables based upon panelist data or customer data. Likewise, none of the other references cited by the Examiner disclose or suggest criterion variables based upon panelist data or customer data. Moreover, the Examiner does not offer any suggestion as to why criterion variables based upon panelist data or customer data should be included in the linear regressions disclosed in either the Geurts article or the Pindyck text.

For these reasons, dependent claim 24 is patentable over the Geurts article in view of the Pindyck text.

The Examiner does say that the present invention is merely a particular application of common techniques. Even if this were so, one does not automatically conclude that an invention is obvious because it employs common techniques. The Examiner has not gone on to show how the use of this "common technique" would have been obvious in the present context.

Therefore, for this reason also, dependent claim 24 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 25 recites the step of performing a linear regression based upon the predictor variables and the criterion variables in order to generate a linear relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the other suppliers. The Examiner asserts that the use of predictor variables and criterion variables in regression analyses is well known in the art, pointing to the Uekawa patent. This patent does not, however, disclose or suggest variables based upon panelist data or customer data. Likewise, none of the other references cited by the Examiner disclose or suggest variables based upon panelist data or customer data. Moreover, the Examiner does not offer any suggestion as to why predictor and criterion variables based upon panelist data or customer data should be included in the linear regressions disclosed in either the Geurts article or the Pindyck text.

For these reasons, dependent claim 25 is patentable over the Geurts article in view of the Pindyck text.

In this rejection, the Examiner goes on to assert that it would have been obvious to perform a linear regression based upon the predictor variables and the criterion variables in order to determine market share for the reasons given in the rejection of independent claim 1. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 25 is erroneous

and the Examiner's rejection of dependent claim 25 must therefore fail.

Therefore, for this reason also, dependent claim 25 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 26 recites that step d) of independent claim 1 comprises the step of applying the customer data to the linear relationship in order to estimate the purchases made by the customers from the other suppliers. In this rejection, the Examiner asserts that the invention of dependent claim 26 would have been obvious, pointing to the discussion regarding market share/purchases made by customers from other suppliers. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 26 is erroneous and the Examiner's rejection of dependent claim 26 must therefore fail.

Therefore, for this reason, dependent claim 26 is patentable over the Geurts article in view of the Pindyck text.

In the rejection of dependent claim 26, the Examiner seems to be equating market share and the purchases made by the customers of a product supplier from other product suppliers. However, market share simply does not yield information about the purchases made by the customers of a product supplier from other product suppliers. Moreover, market share does not suggest determining information about the purchases made by the customers of a product supplier from other product suppliers.



Therefore, dependent claim 26 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 27 recites the step of performing an unrotated principal components factor analysis on the customer data. The Examiner, in referring to the rejection of dependent claim 5, merely says that the unrotated principal components factor analysis is well known as admitted by appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 27. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found the inclusion of an unrotated principal components factor analysis in the type of method recited in independent claim 1 obvious. Because the Examiner has offered no such suggestion, the Examiner has not carried the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 27 is old cannot sustain an obviousness rejection of dependent claim 27, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 27, dependent claim 27 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 28 recites the step of performing a linear regression based upon the panelist data in order to generate a linear relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the

other suppliers. The Examiner asserts that the use of panelist data in regression analyses is well known in the art, pointing to the Uekawa patent. This patent does not, however, disclose or suggest the use of panelist data. Likewise, none of the other references cited by the Examiner disclose or suggest the use of panelist data. Moreover, the Examiner does not offer any suggestion as to why panelist data should be included in the linear regressions disclosed in either the Geurts article or the Pindyck text.

For these reasons, dependent claim 28 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 29 recites that step d) of independent claim 1 comprises the step of applying customer data to the linear relationship. In this rejection, the Examiner asserts that the invention of dependent claim 29 would have been obvious, pointing to the discussion regarding market share/purchases made by customers from other suppliers. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 29 is erroneous and the Examiner's rejection of dependent claim 29 must therefore fail.

In the rejection of dependent claim 29, the Examiner equates market share and the purchases made by the customers of a product supplier from other product suppliers. However, market share simply does not yield information about the purchases made by the customers of a product supplier from other product suppliers.

Moreover, market share does not suggest determining information about the purchases made by the customers of a product supplier from other product suppliers.

Accordingly, for these reasons, dependent claim 29 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 31 recites that step c) of independent claim 30 comprises the step of aggregating the customer data and the panelist data according to categories. The Examiner points to the rejection of dependent claim 2. In the rejection of dependent claim 2, the Examiner "takes official notice" that aggregating data according to categories is a common statistical technique that would have been an obvious to apply in estimating competitor sales. Again, the inventions of the rejected claims are not the estimation of competitor sales in the context of market share but rather an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 31 is erroneous and the Examiner's rejection must therefore fail.

Moreover, even assuming that it is common practice to aggregate sales by category, the Examiner has not shown that it is common to aggregate the particular sales as recited in dependent claim 31. Therefore, another premise of the Examiner's rejection of dependent claim 31 is erroneous and the Examiner's rejection must therefore fail.

For the reasons given above, dependent claim 31 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 32 recites that step c) of independent claim 30 comprises the step of performing an unrotated principal components factor analysis on at least a portion of the aggregated data. In rejecting dependent claim 32, the Examiner points to the rejection of dependent claim 5 in which the Examiner merely says that the unrotated principal components factor analysis is well known as admitted by appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 32. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found obvious the inclusion of an unrotated principal components factor analysis in the type of method recited in the claims from which dependent claim 32 depends. Because the Examiner has offered no such suggestion, the Examiner has not carried the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 32 is old cannot sustain an obviousness rejection of dependent claim 32, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 32, dependent claim 32 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 33 recites that step c) of independent claim 30 comprises the step of determining predictor variables based upon the performing step and upon at least a portion of the aggregated data. In rejecting dependent claim 33, the Examiner points to the

rejection of dependent claim 6 in which the Examiner asserts that predictor variables are common features of regression analyses and, therefore, would have been obvious to use in estimating competitor sales. As discussed above, the inventions of the rejected claims are not directed to estimating competitor sales, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 33 is erroneous and the Examiner's rejection of dependent claim 33 must therefore fail.

Moreover, while the Pindyck text discusses the use of dependent variables, independent variables, explanatory variables, and random variables in regression techniques, the Examiner has not asserted or shown that the Pindyck text discloses the use of predictor variables, much less the predictor variables disclosed in the present application. Therefore, another premise of the Examiner's rejection of dependent claim 33 is erroneous and the Examiner's rejection of dependent claim 33 must therefore fail.

For the reasons given above, dependent claim 33 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 34 recites that step c) of independent claim 30 comprises the step of performing a linear regression on the predictor variables in order to generate a linear equation for each category. In rejecting dependent claim 34, the Examiner points to the rejection of dependent claim 25 in which the Examiner asserts that the use of predictor variables in regression analyses is well known in the art, pointing to the Uekawa patent. This patent does not, however, disclose or

suggest variables based upon aggregated panelist data and customer data. Likewise, none of the other references cited by the Examiner disclose or suggest variables based upon aggregated panelist data and customer data. Moreover, the Examiner does not offer any suggestion as to why predictor variables based upon aggregated panelist data and customer data should be included in the linear regressions disclosed in either the Geurts article or the Pindyck text.

For these reasons, dependent claim 34 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 35 recites that step c) of independent claim 30 comprises the step of estimating the purchases made by the customers from the other suppliers in each category by plugging the customer data into the linear equation for each category. In rejecting dependent claim 35, the Examiner points to the rejection of independent claim 1 and dependent claim 25. Appellants' discussion of the rejection of independent claim 1 and dependent claim 25 apply equally well to the rejection of dependent claim 35.

Accordingly, dependent claim 35 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 36 recites that step c) of independent claim 30 comprises the step of performing an unrotated principal components factor analysis based upon at least one of the panelist data and the customer data. The Examiner, in referring to the rejection of dependent claim 5, merely says that the unrotated principal components factor analysis is well known as admitted by appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal

components factor analysis as recited in dependent claim 22. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found obvious the inclusion of an unrotated principal components factor analysis in the type of method recited in independent claim 30. Because the Examiner has offered no such suggestion, the Examiner has not carried the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 36 is old cannot sustain an obviousness rejection of dependent claim 36, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 36, dependent claim 36 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 37 recites that step c) of independent claim 30 comprises the step of creating a linear equation based upon results from the unrotated principal components factor analysis. In rejecting dependent claim 37, the Examiner points to the rejection of dependent claim 5 in which the Examiner relies on the Uekawa patent. This patent does not, however, disclose or suggest creating a linear equation based upon results from an unrotated principal components factor analysis. Likewise, none of the other references cited by the Examiner disclose or suggest creating a linear equation based upon results from an unrotated principal components factor analysis that in turn is based panelist data or customer data. Moreover, the Examiner does not

offer any suggestion as to why the creation of a linear equation based upon results from an unrotated principal components factor analysis should be included in the teachings of either the Geurts article or the Pindyck text.

For these reasons, dependent claim 37 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 38 recites that step c) of independent claim 30 comprises the step of estimating the purchases made by a supplier's customers from other suppliers by plugging the customer data into the linear equation. In this rejection, the Examiner points to the Examiner's discussion in the rejection of independent claim 1 regarding market share/purchases made by customers from other suppliers. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 38 is erroneous and the Examiner's rejection of dependent claim 38 must therefore fail.

In the rejection of dependent claim 38, the Examiner equates market share and the purchases made by the customers of a product supplier from other product suppliers. However, market share simply does not yield information about the purchases made by the customers of a product supplier from other product suppliers. Moreover, market share does not suggest determining information about the purchases made by the customers of a product supplier from other product suppliers.



Therefore, for these reasons, dependent claim 38 is patentable over the Geurts article in view of the Pindyck text.

Dependent claims 40 and 42 recite that step b) of independent claim 39 comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest. In these rejections, the Examiner points to the Examiner's discussion in the rejection of independent claim 1. This discussion centers around market share. However, as discussed above, the inventions of the rejected claims are not directed to market share. Therefore, a premise of the Examiner's rejection of dependent claims 40 and 42 is erroneous and the Examiner's rejection of dependent claims 40 and 42 must therefore fail.

Therefore, for this reason, dependent claims 40 and 42 are patentable over the Geurts article in view of the Pindyck text.

Dependent claim 41 recites that the panelists used to determine the linear relationship recited in independent claim 39 are a subset of the customers of the supplier of interest. None of the art cited by the Examiner disclose or suggest a method that is based on the customers of a supplier of interest and a panel formed from a subset of these customers.

Therefore, for this reason, dependent claim 41 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 44 recites that the analyzing means of independent claim 43 comprises means for performing an unrotated principal components factor

analysis based upon purchase data. The Examiner, in referring to the rejection of dependent claim 5, merely says that the unrotated principal components factor analysis is well known as admitted by appellants. The Examiner does not go on to argue that it would have been obvious to perform an unrotated principal components factor analysis as recited in dependent claim 44. A bald assertion that a feature of a dependent claim is old cannot sustain an obviousness rejection of that claim.

Moreover, the Examiner has offered no suggestion as why one of ordinary skill in the art would have found obvious the inclusion of a means for performing an unrotated principal components factor analysis as recited in independent claim 44. Because the Examiner has offered no such suggestion, the Examiner has not carried the burden of establishing a prima facie case for obviousness.

Because a bald assertion that the feature of dependent claim 44 is old cannot sustain an obviousness rejection of dependent claim 44, and because the Examiner has not carried the burden of establishing a prima facie case for the obviousness of dependent claim 44, dependent claim 44 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 45 recites that the analyzing means of independent claim 43 comprises means for determining a linear relationship based upon results from the unrotated principal components factor analysis. In rejecting dependent claim 45, the Examiner points to the rejection of dependent claim 5 in which the Examiner relies on the Uekawa patent. This patent does not, however, disclose or suggest creating a linear relationship based upon results from an unrotated

principal components factor analysis. Likewise, none of the other references cited by the Examiner disclose or suggest creating a linear equation based upon results from an unrotated principal components factor analysis that in turn is based upon purchase data. Moreover, the Examiner does not offer any suggestion as to why the creation of a linear equation based upon results from an unrotated principal components factor analysis should be included in the teachings of either the Geurts article or the Pindyck text.

For these reasons, dependent claim 45 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 46 recites that the linear relationship of dependent claim 45 relates purchases made by the panelists from the supplier of interest to purchases made by the panelists from the other suppliers. None of the references cited by the Examiner discloses or suggests creating a linear relationship that relates purchases made by panelists from a supplier of interest to purchases made by the panelists from other suppliers. Some of the references disclose linear relationships, but not linear relationships that relate purchases made by panelists from a supplier of interest to purchases made by the panelists from other suppliers. Without such disclosure or suggestion, it would not have been obvious to combine the Geurts article and the Pindyck text so as to produce such a linear relationship.

For these reasons, dependent claim 46 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 47 recites that the estimating means of independent claim 43 estimates the purchases by

the customers of a supplier from other suppliers based upon the purchases by the customers from the supplier of interest and upon the linear relationship. In this rejection, the Examiner points to the Examiner's discussion in the rejection of independent claim 1. This discussion centers around market share. However, as discussed above, the inventions of the rejected claims are not directed to market share. Therefore, a premise of the Examiner's rejection of dependent claim 47 is erroneous and the Examiner's rejection of dependent claim 47 must therefore fail.

Therefore, for this reason, dependent claim 47 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 48 recites that the analyzing means of independent claim 43 comprises means for determining a linear relationship between purchases made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers. In this rejection, the Examiner points to the Examiner's discussion in the rejection of independent claim 1. This discussion centers around market share. However, as discussed above, the inventions of the rejected claims are not directed to market share. Therefore, a premise of the Examiner's rejection of dependent claim 48 is erroneous and the Examiner's rejection of dependent claim 48 must therefore fail.

Moreover, none of the references cited by the Examiner discloses or suggests determining a linear relationship between purchases made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers. Some of the references disclose linear relationships, but not linear

relationships between purchases made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers. Without such disclosure or suggestion, it would not have been obvious to combined the Geurts article and the Pindyck text so as to produce such a linear relationship.

Therefore, for the reasons given above, dependent claim 48 is patentable over the Geurts article in view of the Pindyck text.

Dependent claim 49 recites that the estimating means of independent claim 43 estimates the purchases by the customers from the other suppliers by plugging the purchases by the customers from the supplier of interest into the linear relationship. In this rejection, the Examiner points to the Examiner's discussion in the rejection of independent claim 1. However, as discussed above, the inventions of the rejected claims are not directed to market share, but rather to an estimation of competitor sales to particular people, i.e., the customers of a supplier of interest. Therefore, a premise of the Examiner's rejection of dependent claim 49 is erroneous and the Examiner's rejection of dependent claim 49 must therefore fail.

Therefore, for this reason, dependent claim 49 is patentable over the Geurts article in view of the Pindyck text.

## 9. Conclusion

For the foregoing reasons, reversal of the Final Rejection is respectfully requested.

10. Appendix

The Appendix containing a copy of the claims involved in this appeal is attached hereto.

This brief is being filed in triplicate as required by 37 C.F.R. §1.192.

The fee set forth in 37 C.F.R. §1.17(c) is enclosed herein by check. The Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fee which may be required to Deposit Account No. 50-1519.

Respectfully submitted,

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March 15, 2002

**APPENDIX**

1. A method of estimating purchases made by customers of a supplier of interest from other suppliers, wherein the method is performed on a computer, and wherein the method comprises the following steps:

a) reading panelist data regarding purchases made by panelists from the supplier of interest and from the other suppliers, wherein the panelists are a subset of the customers;

b) determining a relationship between the purchases made by the panelists from the supplier of interest and the purchases made by the panelists from the other suppliers;

c) reading customer data regarding purchases made by the customers from the supplier of interest; and,

d) based upon the customer data and the relationship, estimating the purchases made by the customers from the other suppliers.

2. The method of claim 1 wherein step a) comprises the step of aggregating the panelist data according to categories, and wherein step (c) comprises the step of aggregating the customer data according to categories.

3. The method of claim 2 wherein the aggregated data includes a number of dollars that each panelist spent with the supplier of interest by category and a number of dollars that each panelist spent with the other suppliers by category.

4. The method of claim 3 wherein the aggregated data includes share for the supplier of interest and share for the other suppliers by category.

5. The method of claim 2 comprising the step of performing an unrotated principal components factor analysis on at least one of the aggregated panelist data and the aggregated customer data.

6. The method of claim 5 comprising the step of determining predictor variables based upon on at least one of the aggregated panelist data and the aggregated customer data.

9. The method of claim 6 wherein the predictor variables include factors  $F_1$  through  $F_i$  resulting from the performing step.

10. The method of claim 9 wherein the predictor variables also include the squares of the factors  $F_1$  through  $F_i$ .

11. The method of claim 9 wherein the predictor variables also include interdependent factors based upon products of the factors  $F_1$  through  $F_i$ .

14. The method of claim 6 wherein the predictor variables include a total number of dollars spent in a category.



15. The method of claim 14 wherein the predictor variables also include a square of the total number of dollars.

16. The method of claim 6 comprising the step of determining criterion variables based upon at least one of the aggregated panelist data and the aggregated customer data.

22. The method of claim 1 comprising the step of performing an unrotated principal components factor analysis on at least one of the panelist data and the customer data.

23. The method of claim 22 comprising the step of determining predictor variables based upon on at least one of the panelist data and the customer data.

24. The method of claim 23 comprising the step of determining criterion variables based upon on at least one of the panelist data and the customer data.

25. The method of claim 24 comprising the step of performing a linear regression based upon the predictor variables and the criterion variables in order to generate the relationship, wherein the relationship is a linear relationship.

26. The method of claim 25 wherein step d) comprises the step of applying the customer data to the linear relationship in order to estimate the purchases made by the customers from the other suppliers.

27. The method of claim 1 comprising the step of performing an unrotated principal components factor analysis on the customer data.

28. The method of claim 27 comprising the step of performing a linear regression based upon the panelist data in order to generate the relationship, wherein the relationship is a linear relationship.

29. The method of claim 28 wherein step d) comprises the step of applying the customer data to the linear relationship.

30. A method of estimating purchases made by customers of a supplier of interest from other suppliers, wherein the method is performed on a computer, and wherein the method comprises the following steps:

a) reading customer data regarding purchases made by the customers from the supplier of interest;

b) reading panelist data regarding purchases made by panelists from the supplier of interest and from the other suppliers, wherein the panelists are a subset of the customers; and,

c) based upon the customer data and the panelist data, estimating purchases made by the customers from the other suppliers.

31. The method of claim 30 wherein step c) comprises the step of aggregating the customer data and the panelist data according to categories.

32. The method of claim 31 wherein step c) comprises the step of performing an unrotated principal components factor analysis on at least a portion of the aggregated data.

33. The method of claim 32 wherein step c) comprises the step of determining predictor variables based upon the performing step and upon at least a portion of the aggregated data.

34. The method of claim 33 wherein step c) comprises the step of performing a linear regression on the predictor variables in order to generate a linear equation for each category.

35. The method of claim 34 wherein step c) comprises the step of estimating the purchases made by the customers from the other suppliers in each category by plugging the customer data into the linear equation for each category.

36. The method of claim 30 wherein step c) comprises the step of performing an unrotated principal components factor analysis based upon at least one of the panelist data and the customer data.

37. The method of claim 36 wherein step c) comprises the step of creating a linear equation based upon results from the unrotated principal components factor analysis.

38. The method of claim 37 wherein step c) comprises the step of estimating the purchases made by the customers from the other suppliers by plugging the customer data into the linear equation.

39. A method of estimating purchases made by customers of a supplier of interest, wherein the method is performed on a computer, and wherein the method comprises the following steps:

a) determining a linear relationship between purchases made by panelists from the supplier of interest and purchases made by the panelists from the other suppliers; and,

b) estimating purchases by the customers from the other suppliers based upon the linear relationship.

40. The method of claim 39 wherein step b) comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest.

41. The method of claim 39 wherein the panelists are a subset of the customers.

42. The method of claim 41 wherein step b) comprises the step of estimating purchases from the other suppliers made by the customers of the supplier of interest based upon the linear relationship and purchases made by the customers from the supplier of interest.

43. A system for estimating purchases made by customers of a supplier of interest comprising:

analyzing means for analyzing purchases made by the customers from the supplier of interest and purchases made by panelists from both the supplier of interest and other suppliers, wherein the panelists are a subset of the customers of the supplier of interest; and,

estimating means for estimating purchases by the customers from the other suppliers based upon the analyzed purchases.

44. The method of claim 43 wherein the analyzing means comprises means for performing an unrotated principal components factor analysis based upon purchase data.

45. The method of claim 44 wherein the analyzing means comprises means for determining a linear relationship based upon results from the unrotated principal components factor analysis.

46. The method of claim 45 wherein the linear relationship relates purchases made by the panelists from the supplier of interest to purchases made by the panelists from the other suppliers.

47. The method of claim 45 wherein the estimating means estimates the purchases by the customers from the other suppliers based upon the purchases by the customers from the supplier of interest and upon the linear relationship.

48. The method of claim 43 wherein the analyzing means comprises means for determining a linear relationship between purchasers made by the panelists from the supplier of interest and purchases made by the panelists from the other suppliers.

49. The method of claim 48 wherein the estimating means estimates the purchases by the customers from the other suppliers by plugging the purchases by the customers from the supplier of interest into upon the linear relationship.